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September 26, 2005

To: Carlito P. Caliboso, Chair
Public Utilities Commission

From: for Maurice H. Kaya

Subject: Comments on Second Act 95 Concept Paper

Thank you for the opportunity to comment on the Second Act 95 Concept Paper. Our comments are provided in the enclosure. We look forward to the Second Workshop on October 3 and 4, and we will attend the technical meeting on October 5. I will attend and the other DBEDT participants are John Tantlinger and Steven Alber.

Enclosure

State of Hawaii Department of Business, Economic Development, and Tourism

Comments on *Proposals for Implementing Renewable Portfolio Standards in Hawaii (Second Concept Paper)*
and
Planned Computer Simulations Facilitating the Analysis of Proposals for Implementing the Renewable Portfolio Standards Provision in Hawaii (Technical Paper)

(In Preparation for the Second Public Utilities Commission Workshop scheduled for October 3 and 4, 2005)

A. Comments on the Technical Paper. We received a copy of the technical paper on Monday, September 26, 2005. Based on a quick review, we are concerned about the fuel cost assumptions as discussed in paragraphs 33, 42, 51, 58, and 65. In those paragraphs, the authors of the Technical Paper state that the fuel cost assumptions for each respective HECO utility are based upon information provided by the utility to the Commission. A range of assumptions of annual growth in the prices of various types of fuels is also presented. Information provided in the technical paper is inadequate to judge the potential accuracy of these forecasts. The only forecasts that we have seen from the HECO utilities were presented as part of their IRP-3 process and were based on old information. KIUC has not provided us with a forecast since the IRP-2 process. The stakeholders need detail as to the specific numbers, data sources, rationale, and scenarios that the utilities provided to the Commission to understand the forecasts.

Due to the criticality of plausible oil price estimates to the modeling process, we offer our views related to oil prices. We believe it is necessary to address these issues because of the obsolete oil price forecasts used in the draft HECO Integrated Resource Plan. HECO's oil price forecast used in IRP-3 in July 2005 was produced in July 2002 and filed with the Public Utilities Commission in September 2003. In IRP-2 and from the beginning of this process, DBEDT has continually urged HECO to develop its fuel price forecasts more closely in time to when they conduct their computer analysis of the IRP plans.

HECO stated that their forecast was based upon HECO's actual cost of fuel in 2002 (a year in which HECO's LSFO fuel price was the lowest since 1999 and 45% lower than in 2004), and on the US Energy Information Administration's (USEIA) March 2002 *Short-Term Energy Outlook*, and the *Annual Energy Outlook 2002*, published in late 2001.

In section 5.2 of the draft IRP plan, HECO compared their July 2002 and May 1998 forecasts. HECO states that it believes "that the use of the 2002 fuel price forecasts is reasonable and remains valid for long-term planning purposes." HECO notes that, "although current prices are high, USEIA expects that future prices will drop in the near term and will start to level in 2007." As we pointed out in a letter sent to HECO on August 11, 2005, the USEIA no longer expected future prices to drop in the near term or even to start going down in 2007 -- and that was before Hurricanes Katrina and Rita.

Here is what USEIA said about the reference case forecast and the alternative cases presented in the *Annual Energy Outlook* (*AEO2005)* issued in December 2004:

> The *AEO2005* reference case assumes a moderate market strategy between low-price, low-risk market share maximization and high-price, high-risk profit maximization. Alternative cases, in which different oil market behaviors are assumed, are also considered in *AEO2005*, including the October oil futures case, high A and B world oil price cases, and a low world oil price case. As with all of the projections in *AEO2005*, the oil price forecasts do not represent an assessment of what will happen, but rather, an assessment of what might happen under various scenarios. Higher or lower price paths are possible and short-term price volatility in oil markets, which *AEO* scenarios do not attempt to model, is likely to continue.

Moreover, since April 2005, a number of USEIA reports and presentations have conveyed an increasing realization by USEIA that high oil prices are based on market fundamentals, not a cyclical upswing.

For example, on July 12, 2005 , USEIA adjusted its short-term oil price projection for 2005 through the end of 2006 by an increase of about $8-10/bbl from its November 2004 forecast, explaining that: "[A]verage WTI [West Texas Intermediate crude oil] prices are projected to remain above $55 per barrel for the rest of 2005 and 2006." EIA also reported: "[M]arkets could cause light crude oil prices to average above $60 per barrel." This higher price is more relevant to Hawaii, due to local refineries' needs for light/sweet crude oil.

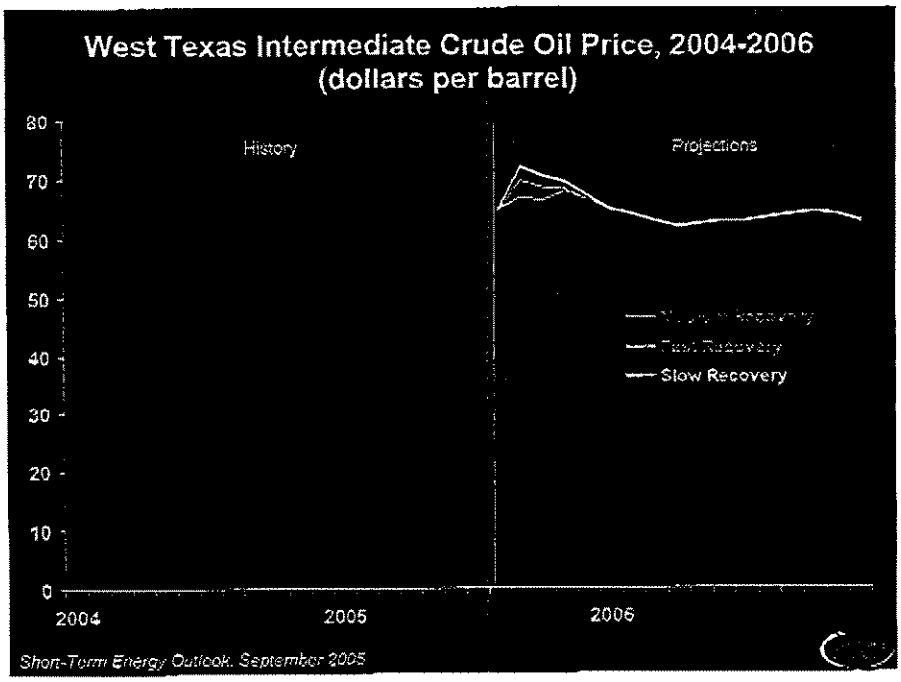
The *Short-Term Energy Outlook* of July 12, 2005, summarized USEIA views as follows:

> Several factors are contributing to the expectation of continued high crude oil prices. First, worldwide petroleum demand growth is projected to remain robust during 2005 and 2006, although not as strong as in 2004. . .
>
> Second, production growth in countries outside of the Organization of Petroleum Exporting Countries (OPEC) is not expected to accommodate incremental worldwide demand growth. . . .
>
> Third, worldwide spare production capacity has recently diminished; in practice, only Saudi Arabia has any spare crude oil production capacity available, and the Saudis would need to steeply discount their heavy oil in order to market it effectively. . . .
>
> Fourth, downstream sectors, such as refining and shipping, are expected to remain tight. . . .
>
> Finally, geo-political risks, such as the continued insurgency in Iraq and possible problems in Nigeria and Venezuela, are expected to keep the level of uncertainty in world oil markets high. . . .

EIA also noted that "another factor that could influence the U.S. oil market over the next few months is the severity and location of hurricanes. . . . With limited spare global crude oil production capacity and U.S. refinery utilization rates in the upper 90-percent range for much of the summer, oil prices are likely to react strongly to any disruption of or damage to petroleum infrastructure."

EIA's prediction was borne out with the devastation of U.S. Gulf Coast petroleum infrastructure by Hurricanes Katrina and Rita. While Rita had yet to occur, Katrina's "shut-in" of approximately 1.5 million barrels of U.S. petroleum output (combined total of production and refining output) was factored into the agency's latest *Short-Term Energy Outlook* (SEO), September 7, 2005 (http://www.eia.doe.gov/emeu/steo/pub/contents.html).

In a **September 14, 2005,** presentation to **Center for Strategic and International Studies, Washington, D.C.,** USEIA Administrator, Guy F. Caruso, used the following graph to illustrate the forecast in the September 7, 2005, SEO. The graph is the second slide in Caruso's presentation, available on the Internet at: http://www.eia.doe.gov/neic/speeches/caruso091405.ppt.



The *International Energy Outlook 2005* was published by USEIA in April 2005 providing additional useful background its forecasts. It is available at: http://www.eia.doe.gov/oiaf/ieo/pdf/0484(2005).pdf.

In addition, however, we recommend care be taken to avoid over-reliance solely on USEIA, or any single oil price forecast for the purpose of detailed, Hawaii-specific energy system modeling. This is particularly important, given Hawaii's distinctive requirements for light sweet crude oils. In USEIA's case, for example, world oil price is forecast, which averages prices for numerous types of crude oils. The differential higher

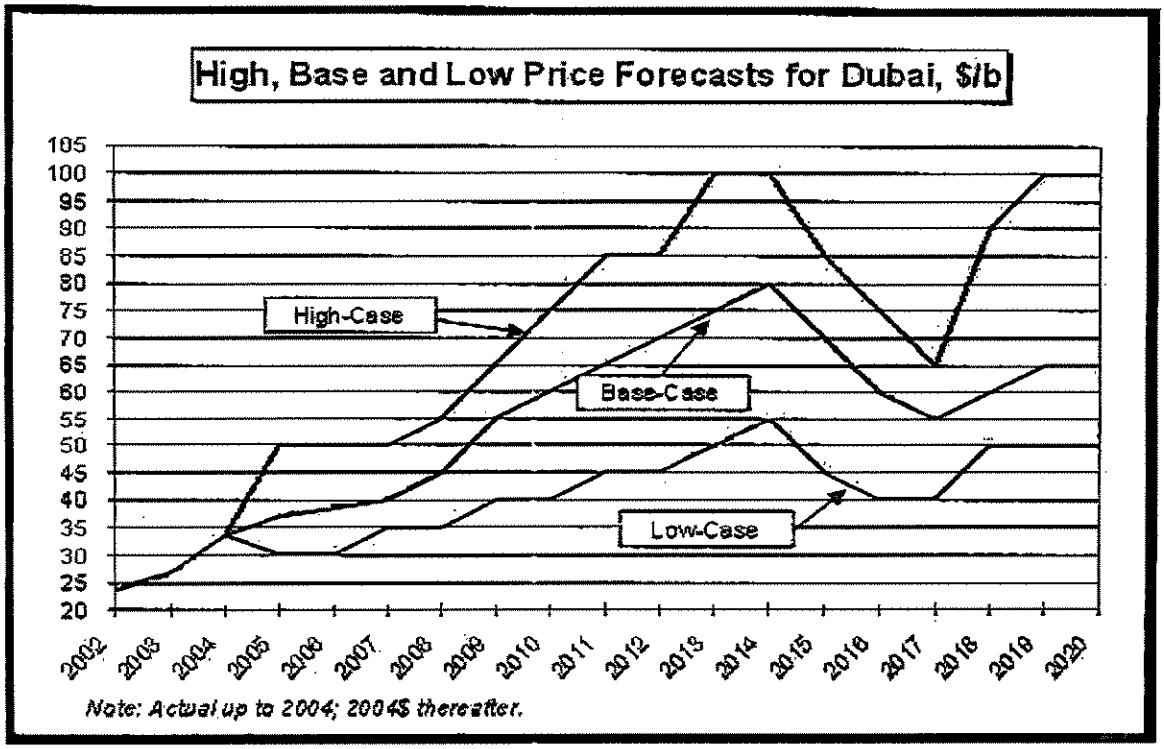
price for light sweet crude oil has become increasingly higher, and some experts believe that this trend is likely to continue.

In November 2004, HECO invited experts from industry, academia, and government to present their views on the future of oil markets and prices. The three experts agreed that oil has reached a new plateau price, not just a cyclical high point, and this new plateau was due to shifts in market fundamentals.

In May 2005, one of these experts, Dr. Fereidun Fesharaki of the East-West Center, presented a forecast through the year 2020 for Dubai crude oil (Medium/Sour Mid-East crude). He reiterated his belief that oil markets had reached a new plateau and presented the following forecast:

Low Case 2020 Price -	$50/bbl	(Steady increase to $55 by 2015)
Base Case 2020 Price -	$60-65/bbl	(Steady increase to $80 by 2015)
High Case 2020 Price -	$100/bbl	(Steady increase to $100 by 2015)

Dr. Fesharaki 's forecast is presented in graphic form below.



The three experts mentioned above conducted their research independent of one another. However, their conclusions were very consistent, and generally characterized today's oil market as presenting a particularly critical challenge for Hawaii. They concluded and make a convincing case that the long-term, economic fundamentals in

nearly all aspects of today's world oil market support high oil prices over the long-term, and historical low price trends will not return. This holds great significance for Hawaii's primarily oil-based electricity utilities, which are, thus, nearly completely dependent on this new world oil market.

Especially strong worldwide demand (Asia-Pacific, and China in particular), against tight supply and very little spare production and refining capacities; limited tanker availability, and ship-building not keeping pace with tankers going out of service (de-commissioning & scrapping) are keeping shipping costs very high (Very Large Crude Carrier average daily freight rates: 2002 ≈ $12,000/day; 2004 ≈ $92,000/day).

Environmental policies in the U.S. and many other countries require less sulfur in fuels, which has prompted increasingly higher differential prices for light "sweet" (low sulfur) crude oil, as the world crude oil resource grows heavier and higher in sulfur. Thus, there is a growing requirement for more sophisticated refineries capable of removing sulfur from heavier, sour crude oils. Hawaii's refineries lack such capabilities and must use only light "sweet" (low sulfur) crude oil.

Add to these trends the fact that import dependence is increasing and expected to continue, particularly in the Asia-Pacific Region, which will intensify competition for the same essential commodity, maintaining upward pressure on prices. In 2004, Hawaii imported 13.5% of its crude oil from the Middle East, while in the previous 11 years averaged less than 1% of its imports from that region.

These are long-term, fundamental issues, resolutions of which must also be fundamental and long-term. For example, exploration and development of new crude oil production, expansion of more sophisticated refining capacity, and building more tankers that meet international oil spill mitigation standards all require long lead-times. It will be much more costly than when much of today's infrastructure was first built.

All of these trends make a convincing case that oil prices will remain high over the long-term. Therefore, we recommend that fuel price assumptions to be used in the modeling be re-visited and re-evaluated accordingly.

B. Comments on the Second Concept Paper Introductory Discussion. Before discussing the issues listed in paragraphs 106, 121, and 172, DBEDT offers some comments on the introductory discussion.

1. **The Legislative Mandate.** The paper begins with a discussion of the Legislative Mandate focused on the provisions related ratemaking. We believe that implementation of the RPS should also consider a broader perspective. The RPS is generally supportive of state energy objectives and policies regarding renewable energy as outlined in §226-18, Hawaii Revised Statutes (HRS), which reads as follows:

> **§226-18 Objectives and policies for facility systems--energy.** (a) Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:

> (1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;
>
> (2) Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased;
>
> (3) Greater energy security in the face of threats to Hawaii's energy supplies and systems; and
>
> (4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use.
>
> (b) To achieve the energy objectives, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable energy services to accommodate demand.
>
> (c) To further achieve the energy objectives, it shall be the policy of this State to:
>
> (1) Support research and development as well as promote the use of renewable energy sources;
>
> (2) Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth;
>
> (3) Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits . . .;
>
> (4) Promote all cost-effective conservation of power and fuel supplies . . .;
>
> (5) Ensure that new supply-side resources use the least-cost energy supply option and maximize efficient technologies;
>
> (6) Support research, development, and demonstration of energy efficiency, load management, and other demand-side management programs;
>
> (7) Promote alternate fuels and energy efficiency by encouraging diversification of transportation modes and infrastructure;
>
> (8) Support actions that reduce, avoid, or sequester greenhouse gases.

In addition, the preamble to SB2475 HD2 (Enclosure 1), which became Act 95, provides insight as to the intent of the Legislators who initiated the RPS Legislation. The purpose statement to the preamble is provided below:

> The purpose of this Act is to decrease Hawaii's need to import large amounts of oil, and increase import substitution, economic efficiency, and productivity, by increasing the use and development of Hawaii's renewable energy resources through a partnership between the State and the private sector.

We believe that the intent of the Legislature as expressed in §226-18, HRS, and in the preamble to the bill should frame the context for this collaborative, and for the Commission in implementing the Legislative mandate.

2. **Paragraph 4, Second Sentence.** Paragraph 4 discusses the fact that the utilities have satisfied the RPS requirements set for December 31, 2003. The second sentence states, "The share of generation from non-fossil fuel energy and quantifiable energy conservation without solar water heating . . ." As written, the phrase could be misinterpreted to imply that solar water heating did not count toward satisfying the RPS requirements. The HECO RPS status report placed solar water heating systems under non-fossil fuel energy instead of in the quantifiable energy conservation category. The latter category was then called "quantifiable energy conservation without solar water heating" in the report. In footnote 5, HECO clarifies that solar water heating, which is a DSM program, is listed separately under non-fossil fuel energy.

Recommendation: We recommend that this section be revised for clarity. The second sentence, which is out of context, could be revised to read "generation from nonfossil fuel energy, to include the savings in kWh from solar water heating, and other quantifiable energy conservation . . . ." Alternatively, the phrase, "without solar water heating" could be deleted since the distinction made by HECO in its report is not germane to this discussion.

C. Comments on the issues listed in Paragraph 106.

1. **RPS in Hawaii and other states.** The concept paper's review of RPS in other states was very useful. We believe Hawaii's RPS compares very favorably with those of other states in terms of setting ambitious yet achievable standards. We note that in most states, the utilities are having little trouble complying with their RPS and that wind costs cited were very low, and in no case above six cents per kilowatt hour. While Hawaii's wind plant costs are higher due to factor costs and smaller scale, the same applies to the fossil fuel alternatives.

2. **Tiers or classes of renewable energy resources.** The Hawaii RPS does not have tiers or classes of resources. Due to the isolated nature of Hawaii's electrical systems, however, it may be worthwhile to consider providing a higher level of incentives for the deployment of firm renewable energy systems. These could include municipal solid waste and biomass combustion; biomass-based fuels for use in existing steam units, internal combustion diesels, and combustion turbines; additional geothermal; and intermittent systems that are firmed by the use of battery storage, pumped hydro storage, or renewable systems backed up by fossil generation.

3. **Weights applied to different renewable energy resources in meeting the RPS.** Depending upon how the amount of electricity saved by energy efficiency measures are counted, their inclusion in the definition of renewable energy in the Hawaii RPS could effectively double weight these measures. We believe this is a matter that the Commission should consider in this process.

For example, in HECO's 2004 RPS status report, nonfossil fuel energy (which included photovoltaic plus the solar water heating provided under HECO DSM programs) and quantifiable energy conservation without solar water heating were added together. This value was the sum of HECO's renewable energy and was divided by sales. Using this method HECO reported that its renewable energy portfolio was 11.4%.

KIUC used a different approach in their accounting for 2004. They reported the amount of renewable generation and conserved energy / displaced sales. KIUC included solar water heating, photovoltaics, and DSM under conserved energy /displaced sales. This delineation may have been based upon the fact that solar water heating does not produce kWh and net metered photovoltaics typically do not add net kWh to the grid. KIUC then added their total sales to their displaced sales and divided that by the sum of their renewable generation and their conserved energy/displaced sales. The new value represents the amount sales would have been if the conserved energy / displaced sales had not occurred. KIUC's renewable portfolio was 13.2% of sales using this methodology. KIUC's renewable generation alone was 8% of sales. Using the HECO methodology, KIUC's renewable portfolio would be reported as 14%. Using the KIUC methodology, HECO's renewable portfolio would be 10.9%. HECO's nonfossil fuel energy alone is 7.7% of sales.

The HECO methodology appears to double count the energy efficiency measures. It should be noted that the utilities are already financially compensated for these measures under the DSM program. However, it is clear that energy efficiency is valuable by reducing demand and the need for fossil energy and renewable generation resources.

The KIUC handling of the conserved energy /displaced sales category is more realistic. However, we prefer that the kWh displaced by solar water heating and by photovoltaics be counted in the renewable energy category. DBEDT counts these energy sources as renewable resources in its statistical reports on energy generation and usage. Solar water heating directly provides heat to owners -- heat which has a kWh equivalent. Photovoltaics produce kWh for their owner for a variety of end-uses.

4. **Centralized and decentralized procurement.** Economies of scale might result from centralized procurement involving all four Hawaii electric utilities. Such items as photovoltaic panels with associated electronics and solar water heating systems might benefit from centralized procurement, but careful analysis should be undertaken to ensure that this would not disrupt Hawaii's solar industry.

5. **Price ceilings on renewable energy resource contracts – decoupling avoided cost from renewable energy power purchase contract prices.** It is our understanding that current utility contracts with renewable energy suppliers are at or below avoided cost, but are indexed to avoided cost. This indexing effectively links price paid for renewable energy with the price of oil since the major component of avoided cost is fuel. DBEDT recommends that a mechanism be developed to break this link so Hawaii's ratepayers can enjoy economic advantages from renewable energy.

The easiest way to break the link to avoided costs and fuel prices would be for the utility

to develop and own the renewable energy resources. However, to ensure competition, The Commission should set a fair price for fixed price renewable energy contracts, regardless of who builds the renewable facility. In addition, revision of the Energy Cost Adjustment Clause to pass a significant portion of additional fuel costs to the utility rather than passing it all to the customer could encourage greater renewable deployments.

6. **REC trading system.** DBEDT does not believe a REC trading system limited to Hawaii and involving just two players, HECO and KIUC, would be useful. If REC's could be traded with entities beyond Hawaii, in situations where Hawaii entities were selling excess REC's out of state, Hawaii would benefit from the increased renewables. However, REC purchases of offshore credits by Hawaii utilities could reduce the amount of renewable energy actually deployed in Hawaii. In that case, none of the local benefits of renewable energy use would accrue. Perhaps REC exports could be encouraged and REC imports could be discouraged by a regulatory provision. The Commission might allow utilities to keep REC earnings, but not allow them to earn a return on REC purchases.

7. **Charges.** Another method of funding the deployment of renewable energy would be through public benefit charges. Public benefit charges may provide the basis of a system that would reduce overhead in deploying energy efficiency measures and renewable resources and deserve further study.

8. **Alternative compliance fees.** Alternative compliance fees paid by utility instead of supplying renewable energy could be held in escrow for the utility to use in deploying additional renewable energy in the future.

9. **Penalties and fines.** Any penalties and fines should significantly exceed the cost of deploying new renewable energy on the utility system. Penalties and fines would not be rate-based and should ultimately be used to deploy additional renewable energy in a manner that does not financially benefit the utility.

10. **IR mechanisms.** There should be an incentive to the utility and to an IPP to deploy renewable energy. It may be possible to provide a small per kWh incentive to the utility. The incentive would be greater if the utility were deploying the renewables itself, but a smaller incentive would be awarded for new renewable energy purchases from an IPP.

If a performance-based ratemaking system is set up, there should be broader goals than just encouraging renewable energy deployment. Utility rates in Hawaii have grown faster than the cost of living for many years now, only in part due to oil prices, and PBR should provide an incentive to reduce the growth in rates.

11. **Integration with other regulatory proceedings and periodic reviews.** The utilities should continue to issue an annual report of their renewable portfolio status and activities whether or not a compliance milestone is to be met that year.

12. **Exemptions; 13. Waivers; and 14. Compliance.** Exemptions and waivers should be hard to obtain since the objective is compliance. Nevertheless, reality will

likely intervene in certain instances. For example, KIUC's predecessor company contracted for an IPP to develop a wind farm. However, the IPP was unable to find a suitable site and no project was built. Obviously, situations like this must be carefully investigated to ensure that the claimed reason for noncompliance is accurate.

13. **Limited compliance perceived to date.** The HECO utilities have explicitly included compliance with the RPS as a planning objective in the ongoing Integrated Resource Planning process. On the other hand, HECO has not taken significant steps towards deploying new utility-owned renewable energy.

A major weakness of the IRP planning effort has been the use of an unrealistically low oil price forecast and an overestimate of renewable energy construction costs. As a result, renewable energy costs are overestimated, and the utility did not initially plan deployment of significant renewable energy. HECO added more renewable generation to the draft plan after discussions with the Advisory Group in which the members advocated more renewable energy.

The IRP Framework also states that, the utility "shall consider **all feasible** supply-side and demand-side resource options appropriate to Hawaii and **available within the years encompassed by the integrated resource planning horizon** to meet the stated objectives." This suggests to us that estimates of future costs for renewal systems, which are forecast to go down, should be used in the planning process.

The HECO utilities have not deployed utility-owned renewable resources (except for repowering hydro on the HELCO system and Sunpower for Schools) since IRP began. In the current IRP, there is considerable discussion of the potential role of its subsidiary, Hawaii Renewables, Inc., in making passive investments in renewables in support of the HECO preferred plan. These factors make it unclear to us whether HECO intends to own the renewable resources included in the plan.

To our knowledge, the only HECO actions taken in the past decade that resulted in significant additional renewable kWh was completion of repowering of hydro units on the Island of Hawaii and installation of Sun Power for Schools PV systems. In addition, HECO has contracted with IPP's for wind farms being built or repowered on Maui and the Island of Hawaii following years of negotiations, project ownership changes, and other delays.

14. **Legislative mandate.** We believe that adequate flexibility is included in the basic legislation in the form of the provision for a renewable portfolio standards study every five years to assess whether the renewable portfolio standards should be modified as outlined in §269-95(3)., HRS.

15. **Power market characteristics.** No comments.

16. **Energy Cost Adjustment Clause.** We recommend that utilities be further encouraged to install renewable energy by requiring the utilities to share the risk of oil price fluctuations by modifying the ECAC to have the utility bear one half of the increased cost and the utility ratepayers to bear the other half.

D. Comments on the issues listed in Paragraph 121.

1. Overview. Paragraphs 107 to 109. At the end of paragraph 107, the authors state that renewable energy technologies have improved their competitiveness and that they may now be competitive with fossil-fired plants. In paragraph 108, they note that the levelized cost of wind energy is estimated at five cents per kWh. Solar energy is discussed in paragraph 109. The authors note that the costs of solar energy, which we've assumed from context to mean photovoltaics, have been reduced but remained high in comparison to other renewable energy resources.

In paragraph 108, the cost of wind is compared to a pulverized coal plant and a gas combined cycle plant apparently using Mainland data. The prices cited for both of the fossil plants are clearly too low. The coal prices probably do not reflect ocean shipping costs, and there is no natural gas available in Hawaii. In addition, natural gas prices have recently increased considerably on the Mainland, which suggests obsolete data may have been used.

The overview also cites Table D-1 in Appendix D, which lists a number of energy projects and their projected capital costs. We submit that the focus should be on the cost of energy. Tables D-2 through D-4 in Appendix D provide this information. Cost of energy should be compared to such factors as avoided cost and fuel costs. The table below, and titled "Electricity Cost Data", shows current avoided costs, recent fuel costs, the current energy cost adjustment factor, recent and residential rates and recent average rates. Almost all of the projects cited in tables D-2 through D-4 are much less expensive than any of these costs.

Electricity Cost Data

	2003 Avg Fuel Cost	2004 Avg Fuel Cost	2003 Avg PP Cost	2004 Avg PP Cost	3 Qtr 2005 On-Peak Avoided Cost	3 Qtr 2005 Off-Peak Avoided Cost	Sept 2005 ECAC
HECO	$ 0.0587	$ 0.0682	$ 0.0878	$ 0.0922	$ 0.1186	$ 0.0901	$ 0.0609
HELCO	$ 0.0740	$ 0.0879	$ 0.1025	$ 0.1192	$ 0.1668	$ 0.1350	$ 0.0959
KIUC	$ 0.0781	$ 0.0884	$ 0.0692	$ 0.1086	not available		$ 0.1362
MECO - Maui	$ 0.0756	$ 0.1005	$ 0.1033	$ 0.1254	$ 0.1533	$ 0.1399	$ 0.1098
MECO - Lanai					$ 0.1748	$ 0.1748	$ 0.1060
MECO - Molokai					$ 0.1568	$ 0.1568	$ 0.1013

	2003 Avg Residential Rev/kWh	2004 Avg Residential Rev/kWh	Sept 2005 Residential Rev/kWh	2003 Avg Rev/kWh	2004 Avg Rev/kWh
HECO	$ 0.1480	$ 0.1557	$ 0.1762	$ 0.1276	$ 0.1346
HELCO	$ 0.2220	$ 0.2397	$ 0.2788	$ 0.2039	$ 0.2223
KIUC	$ 0.2335	$ 0.2676	$ 0.3119	$ 0.2259	$ 0.2608
MECO	$ 0.1851	$ 0.2083	$ 0.2392	$ 0.1768	$ 0.1996

Sources: Utility FERC Forms 1 and Annual Reports to PUC
Avoided Cost Data filings for 3 Qtr 2005
Effective Rate Summaries for September 2005

We note that residential rates are nearing the point where even solar photovoltaic may be becoming close to cost-effective for net metered systems.

2. Discussions of Wind, Solar; Biomass; Geothermal; and Hydro. The discussions of these renewable energy technologies in paragraphs 114 to 120 in the paper

are very brief and incomplete. We also do not necessarily see the relevance of this discussion to the matters at hand.

E. Comments on the issues listed in Paragraph 172.

1. General Comments. Appendix A provides a useful summary of the Desirable Attributes of Rate Regulation. We agree with the basic premise that regulation seeks to provide incentives, but that in a monopoly situation, it must also mitigate market power while keeping the returns to the utility at competitive levels. The discussion cites four functions of a utility price system: capital attraction, production efficiency, consumer rationing, and compensatory income transfer.

2. Capital attraction. About 40% of the electricity on the HECO system is generated by IPPs, which did not involve capital investment by HECO. HECO has made some capital investment in new generation on the Island of Hawaii and Maui over the past decade. While renewable energy has higher per kWh costs than fossil fuel generation, the increments are smaller. HECO has taken the position in the past that it prefers to have renewables developed by others. We do not understand this position as it appears that the current regulatory structure rewards expenditure of capital on new generation and believe HECO may be short-changing its shareholders unless it deploys renewable energy systems.

3. Production efficiency. The Hawaii utilities do not enjoy economies of scale found on the Mainland due to their geographic isolation from each other. Most utility-owned fossil fuel units in Hawaii are old and relatively inefficient. Only HELCO and KIUC operate renewable energy systems.

Heat Rates of Utility and IPP Generation

	Btu per Net kWh	
	On-Peak	Off-Peak
HECO	13,332	9,929
HELCO	16,002	12,703
KIUC	9,560	not available
MECO	12,856	11,600
Kalaeloa	9,137	not available
AES Hawaii	10,310	not available
Hamakua	7,773	not available

As shown on the table above, entitled, "Heat Rates of Utility and IPP Generation", the newer IPP units have good heat rates – especially Kalaeloa's combined cycle unit and Hamakua's dual-train combined cycle unit burning naphtha. KIUC recently purchased a steam injection combustion turbine that uses naphtha from an IPP, which reduced their heat rate considerably. Increased use of renewable energy will certainly improve production efficiency by reducing fossil fuel use.

4. **Candidate RPS Components.**

- **REC Trading System.** As noted above, it is not clear that a REC trading system involving basically two players, HECO and KIUC, would be useful. If RECs could be traded with entities beyond Hawaii, in situations where Hawaii entities were selling excess RECs out of state, Hawaii would benefit from the increased renewables. However, REC purchases of offshore credits by Hawaii utilities could reduce the amount of renewable energy actually deployed in Hawaii. In that case, none of the local benefits of renewable energy use would accrue. Perhaps REC exports could be encouraged and REC imports could be discouraged by a regulatory provision. The Commission might allow utilities to keep REC earnings, but not allow them to earn a return on REC purchases.

- **Alternative Compliance Fees.** One of the problems with such fees could be finding a way to apply them to renewable energy. If a Public Benefits Charge system were also created, the entity administering the PBC could manage the appropriate use of the fees. A simpler method would be for the alternative compliance fees to be held in escrow for the utility to use in deploying additional renewable energy in the future.

- **Penalties.** Any penalties and fines should significantly exceed the cost of deploying new renewable energy equivalent to the current utility and IPP portfolio on the utility system. Penalties and fines would not be rate-based. Perhaps a mechanism could allow use of penalty funds to install renewables, but with no future gain to the utility from those specific systems.

- Utility receives its own avoided cost estimate (no comments)

- Utility receives a difference share (no comments)

- Claw back of incremental utility profit (no comments)

- Utility receives a payment based on a multiplier (no comments)

Additional Comments: We recommend that EI review the findings of the Collaborative in Docket 94-0226, which produced a report to the Legislature pursuant to SCR 40, SD1, 1994 for possible additional ways to facilitate and provide incentives for renewable energy. The report from the Commission to the Legislature is entitled *Strategies to Facilitate the Development and Use of Renewable Energy Resources in the State of Hawaii*. It is available at: http://www.state.hi.us/dbedt/ert/puc940226/puc940226.html

Thank you for the opportunity to offer these comments.

Preamble to SB2475 HD2

SECTION 1. Building a sustainable future in Hawaii requires the government to take a leadership role in developing programs and initiatives designed to encourage people to live within their means. The legislature finds that a significant impediment to the goal of sustainability is the large imbalance between the amount of goods and services exported from Hawaii in comparison to the amount of goods and services imported to Hawaii. Specifically, the legislature notes that Hawaii exports only $2,000,000,000 a year in goods and services while at the same time importing $15,000,000,000 in goods and services.

Enterprise Honolulu stated that "a key characteristic of a healthy economy is that it exports more than it imports. If payments for imports exceed payments for exports, we have a 'trade deficit.' Just like a negative balance in your checking account impacts your household, if a trade deficit continues too long, the region's quality of life begins a downward slide."

The legislature finds that Hawaii imports between $2,000,000,000 and $3,000,000,000 worth of oil annually. These figures represent a growing dependence on oil imports.

The legislature finds that the key to achieving sustainability lies in economic diversification, export expansion, and import substitution. In the energy context, import substitution may be achieved by increasing the use and development of renewable energy resources found in Hawaii, such as wind, solar, ocean thermal, wave, and biomass resources. In addition, developing Hawaii's renewable energy resources offers important job creation, environmental protection, and energy security benefits.

The legislature further finds that the State should be a strategic partner with the private sector in developing these renewable energy resources, and that the State's willingness and intent to provide relevant and meaningful support for this endeavor should be embedded into public policy.

The purpose of this Act is to decrease Hawaii's need to import large amounts of oil, and increase import substitution, economic efficiency, and productivity, by increasing the use and development of Hawaii's renewable energy resources through a partnership between the State and the private sector.

Enclosure 1